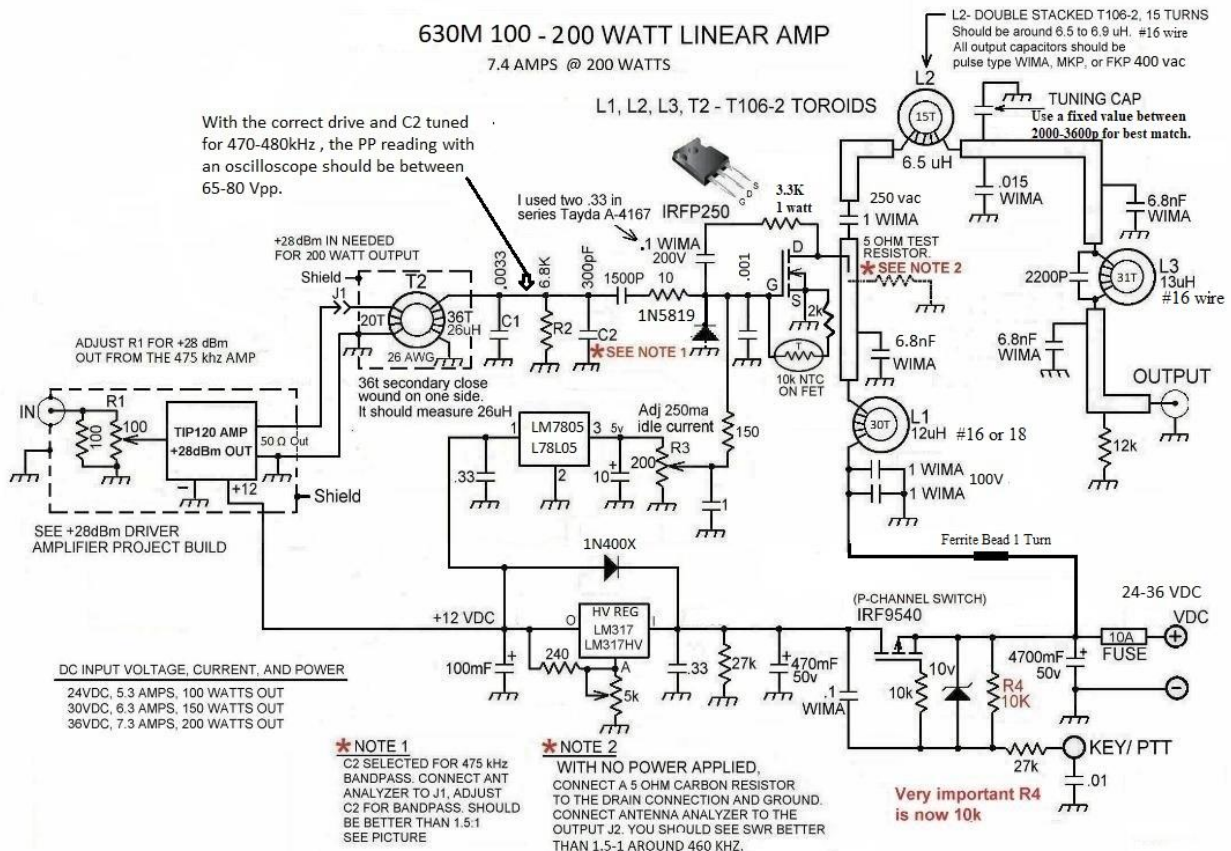


630M 100 to 200 WATT LINEAR AMP

ADDITIONS TO THIS DOCUMENT WILL BE ADDED IF CHANGES ARE MADE.

Read the "IRFP250 MOSFET notes" on the home page.

TIP120 amp schematic page 2

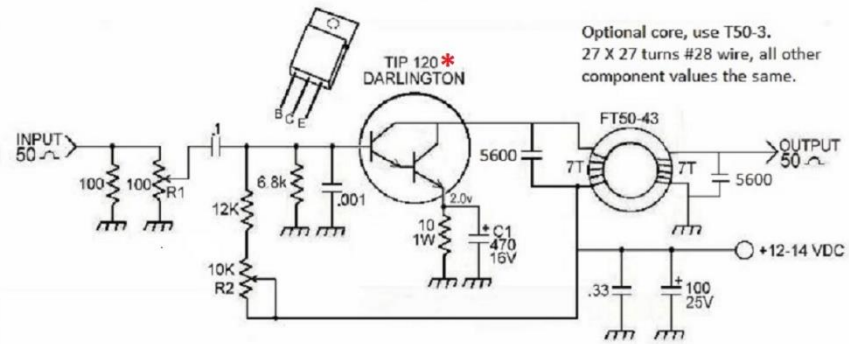


02/17/2024

See final page for a larger print Schematic.

630 METER .6 WATT AMPLIFIER

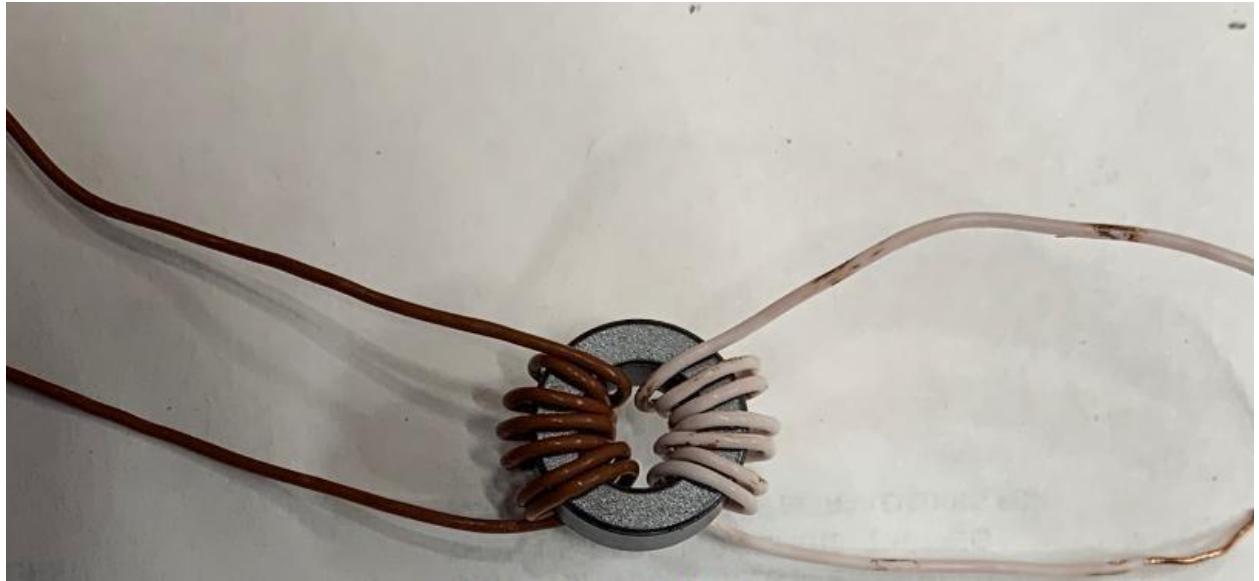
Use STMicroelectronics device
only for the TIP120.



-10 dBm IN +28 dBm OUT

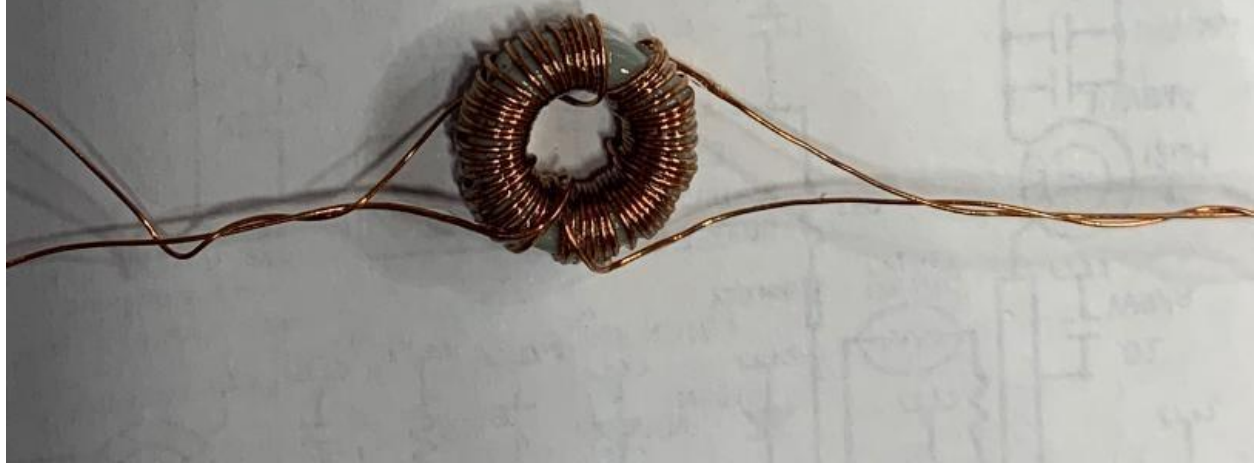
Adjust R2 for 200ma current at the supply voltage or adjust for 2.0 vdc on the emitter of the TIP120.

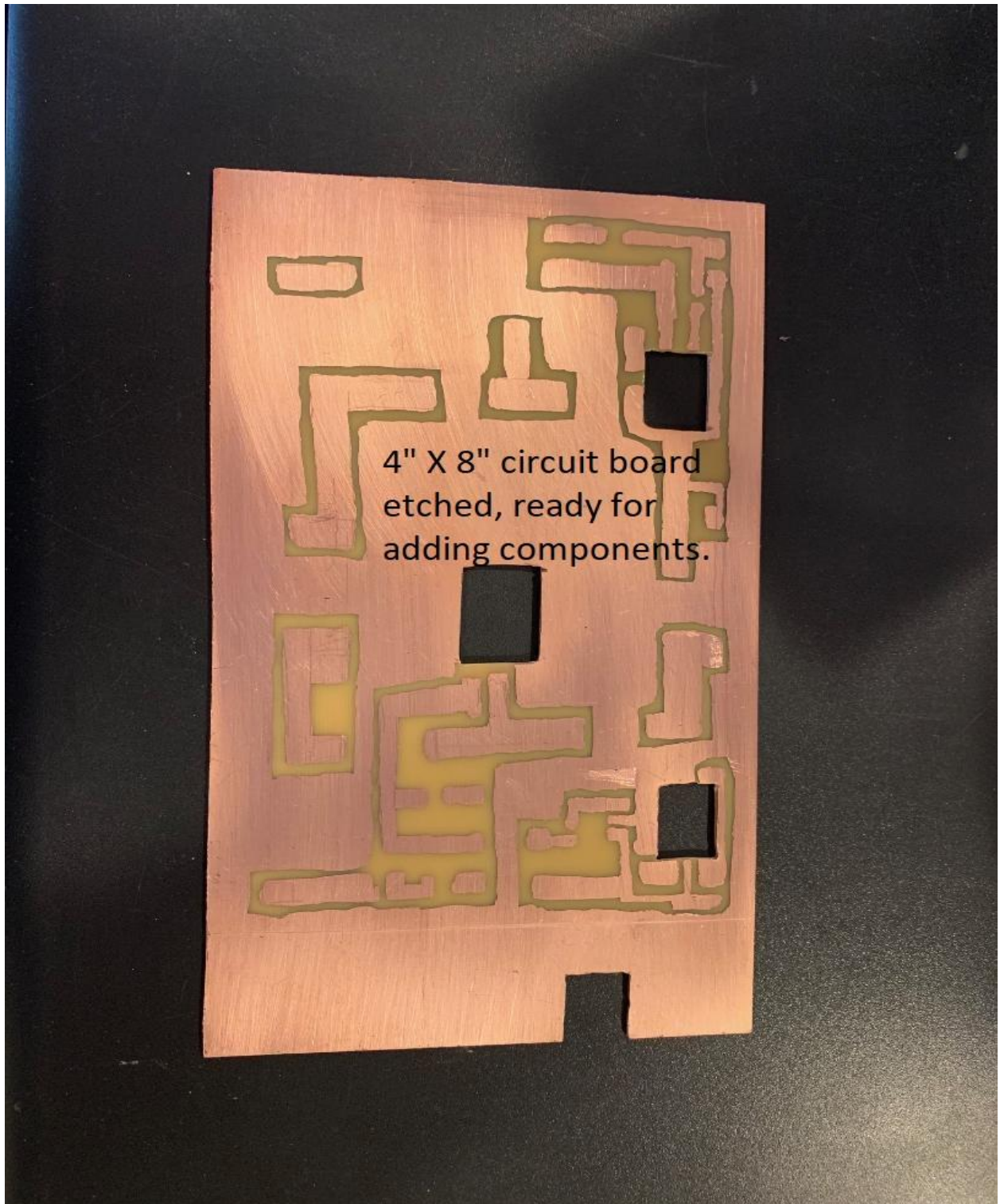
See next page for the two Cores that can be used in the Driver Amp.



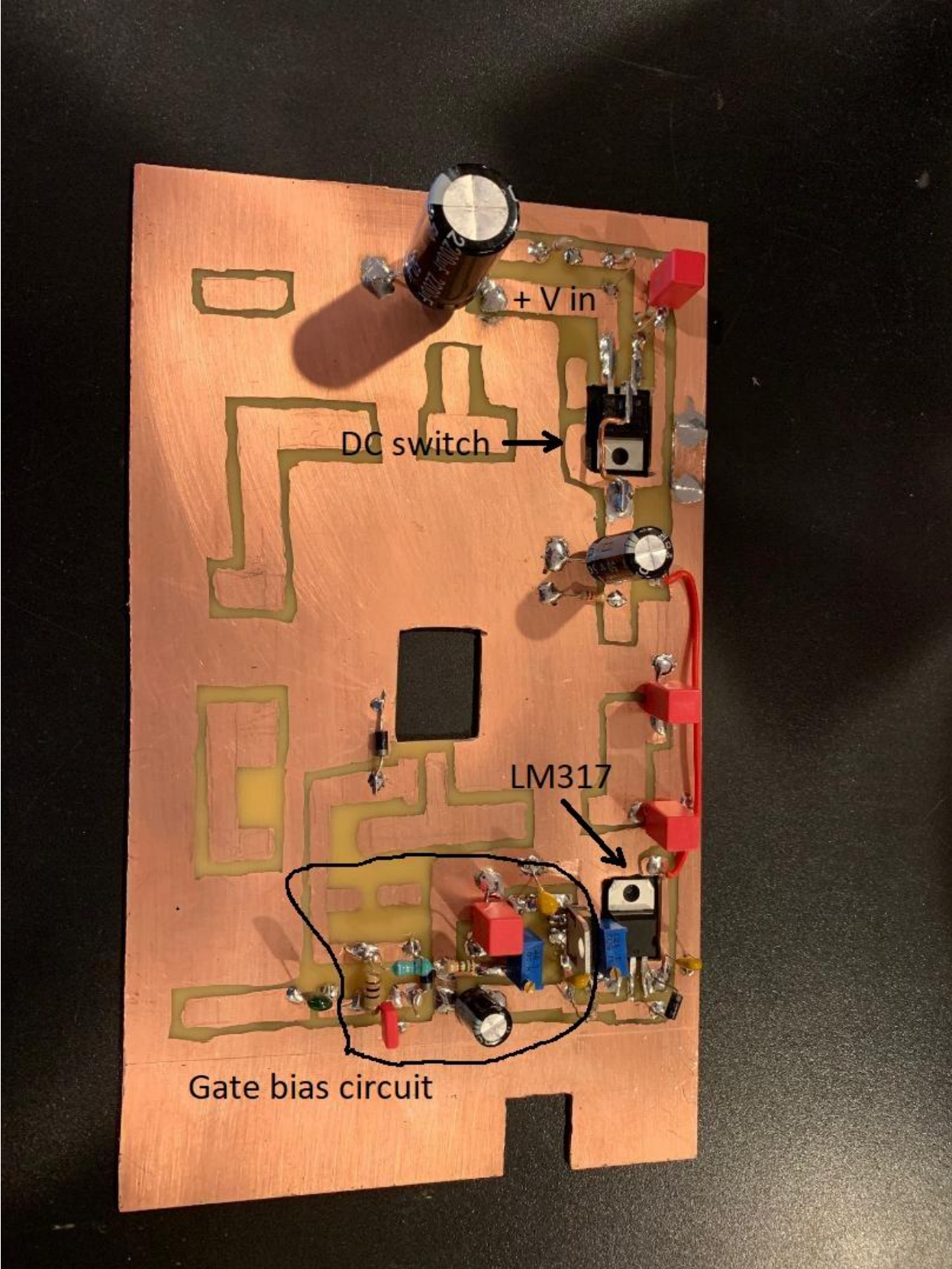
FT50-43, 7 X 7 turns

T50-3 27 X 27 turns # 28 AWG. This core is a slightly better performer in the circuit, but more difficult to wind.





This is a hand laid out board, but I have factory etched boards available. See PCB board on my home page.

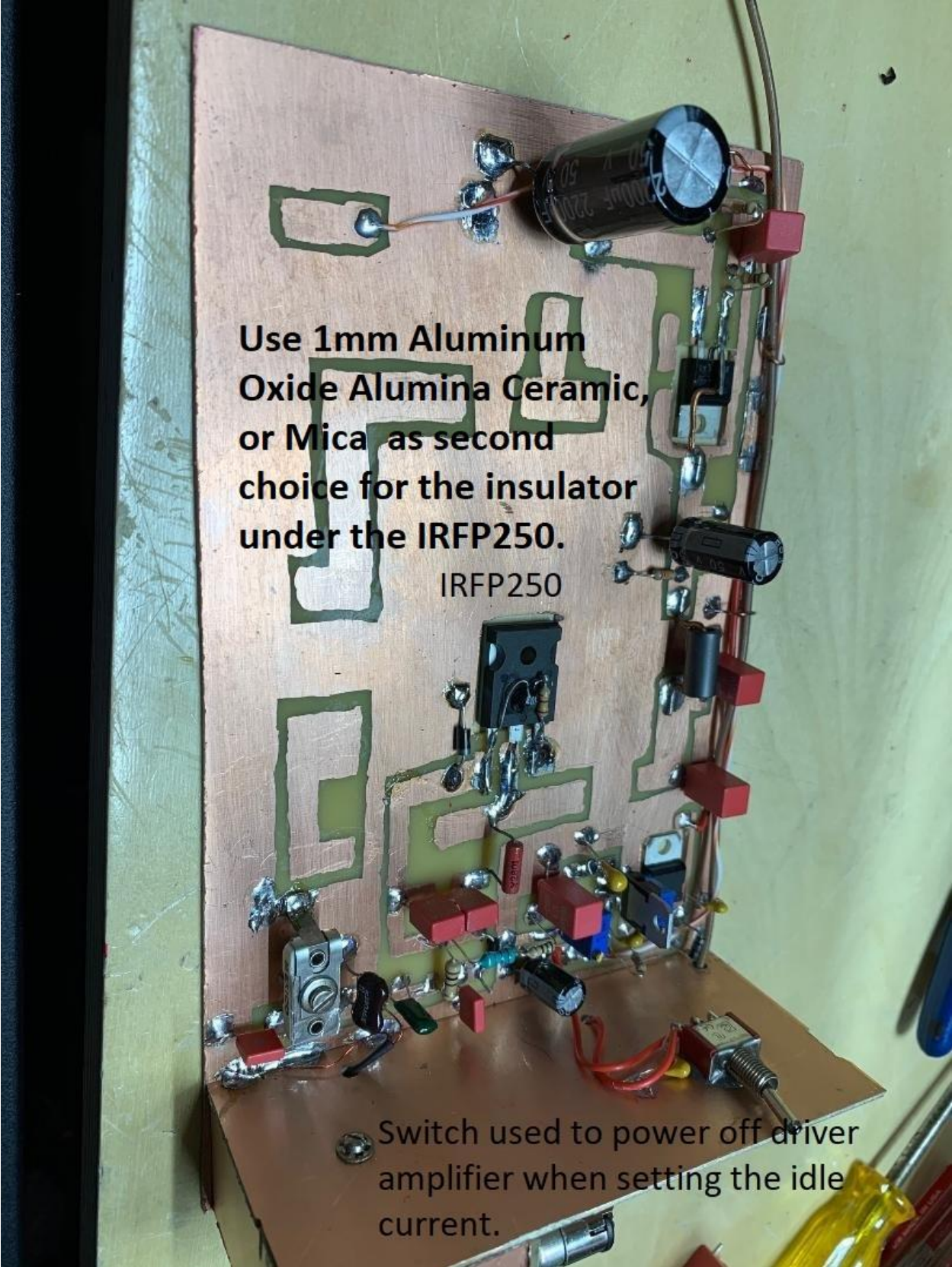


+ V in

DC switch

LM317

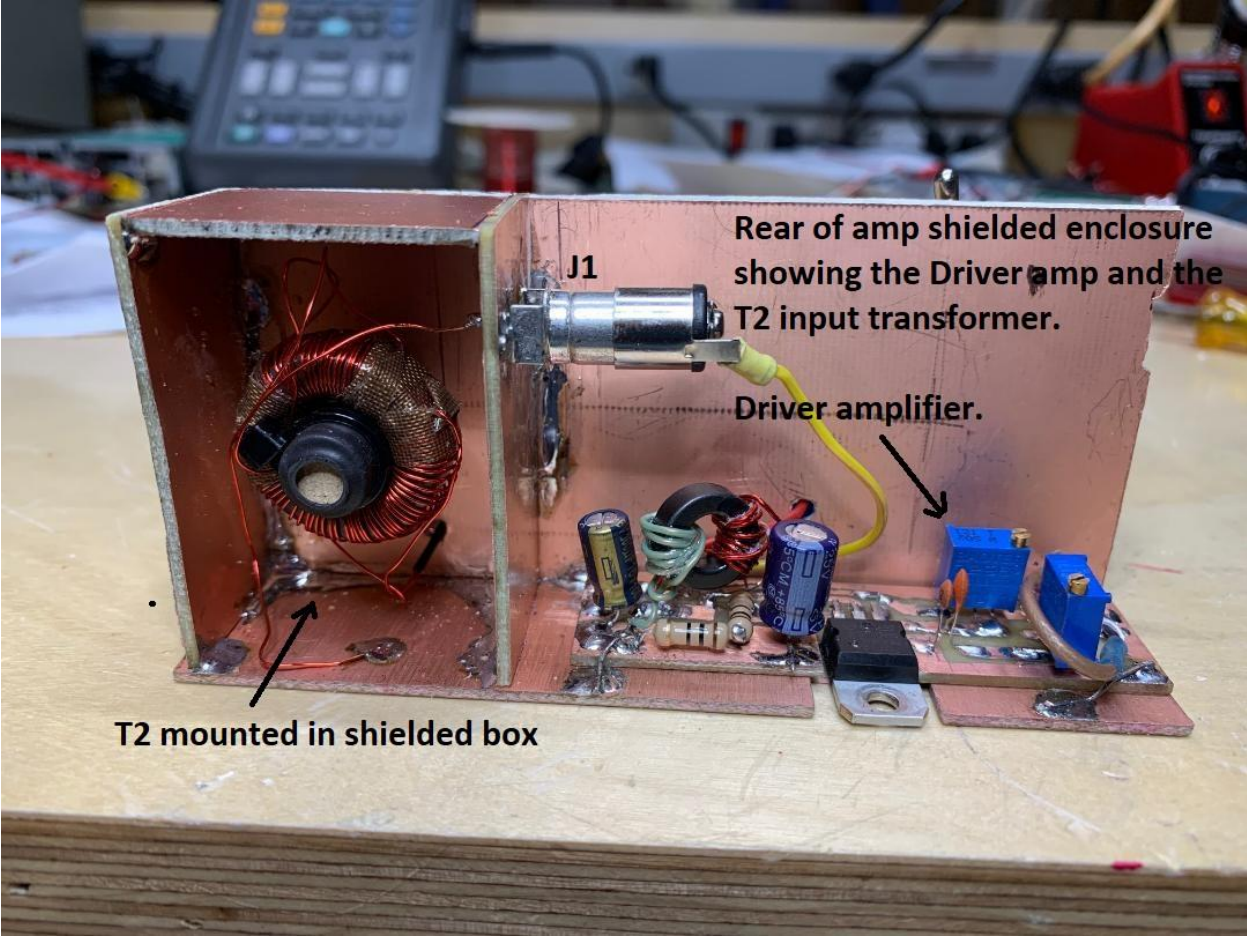
Gate bias circuit



Use 1mm Aluminum
Oxide Alumina Ceramic,
or Mica as second
choice for the insulator
under the IRFP250.

IRFP250

Switch used to power off driver
amplifier when setting the idle
current.

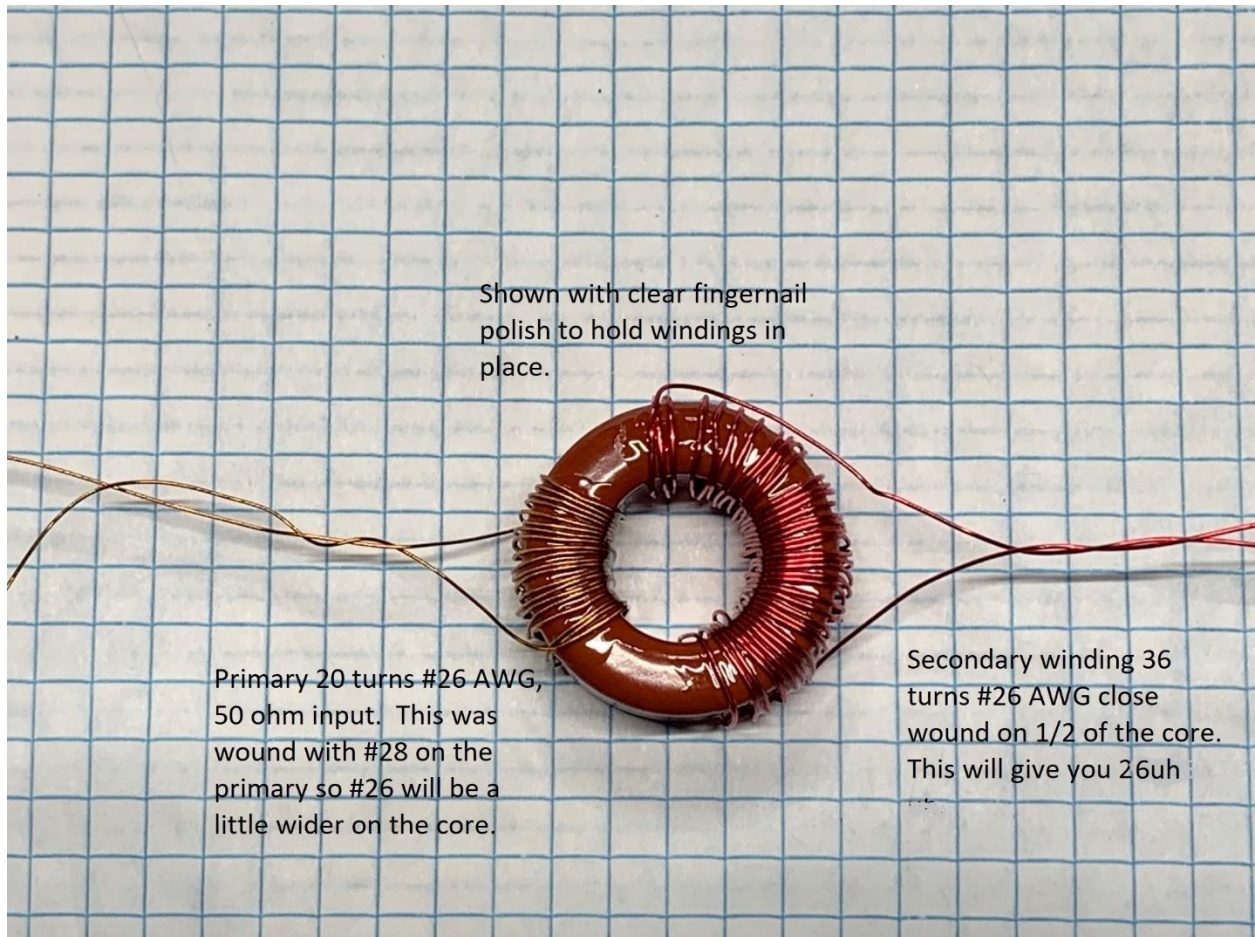


Rear of amp shielded enclosure showing the Driver amp and the T2 input transformer.

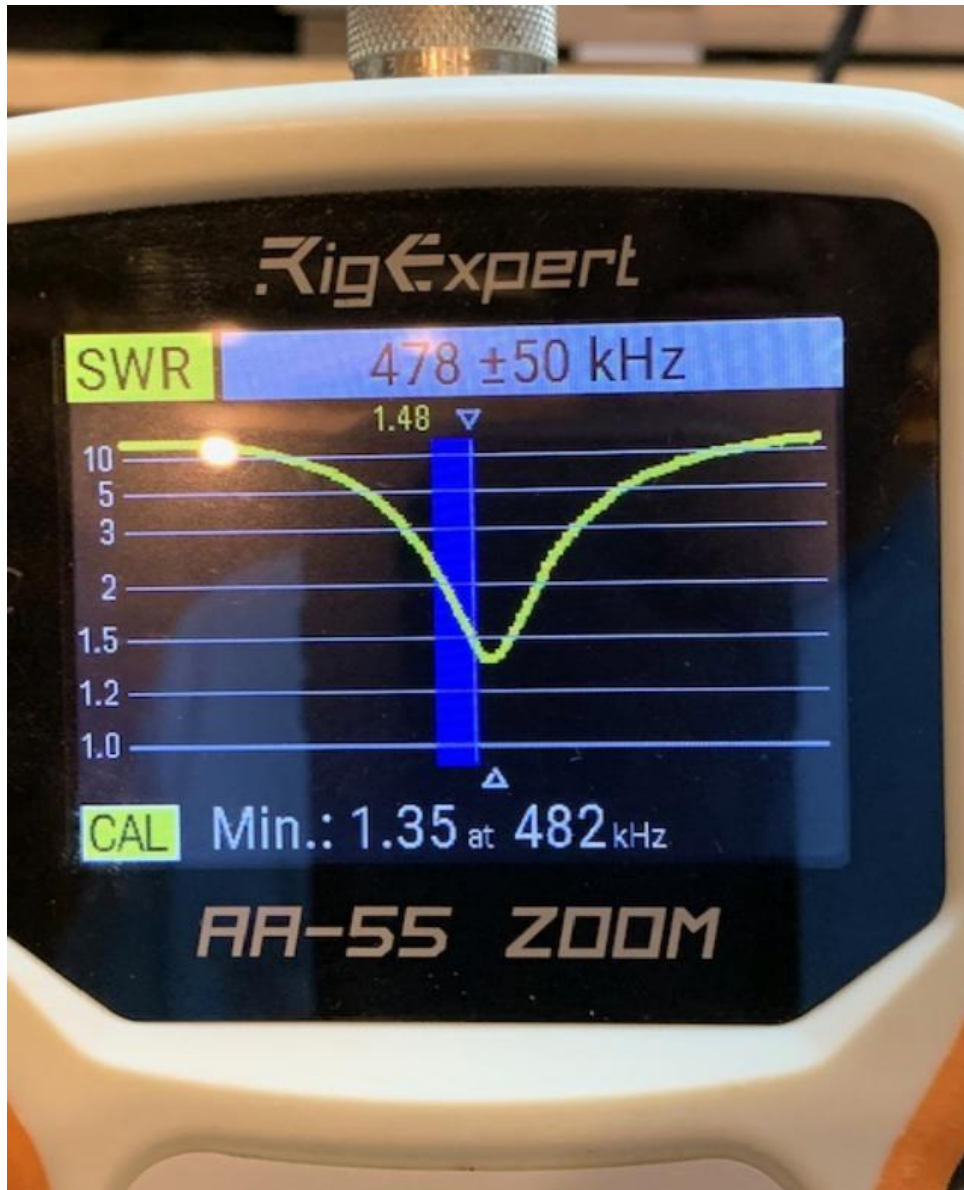
Driver amplifier.

J1

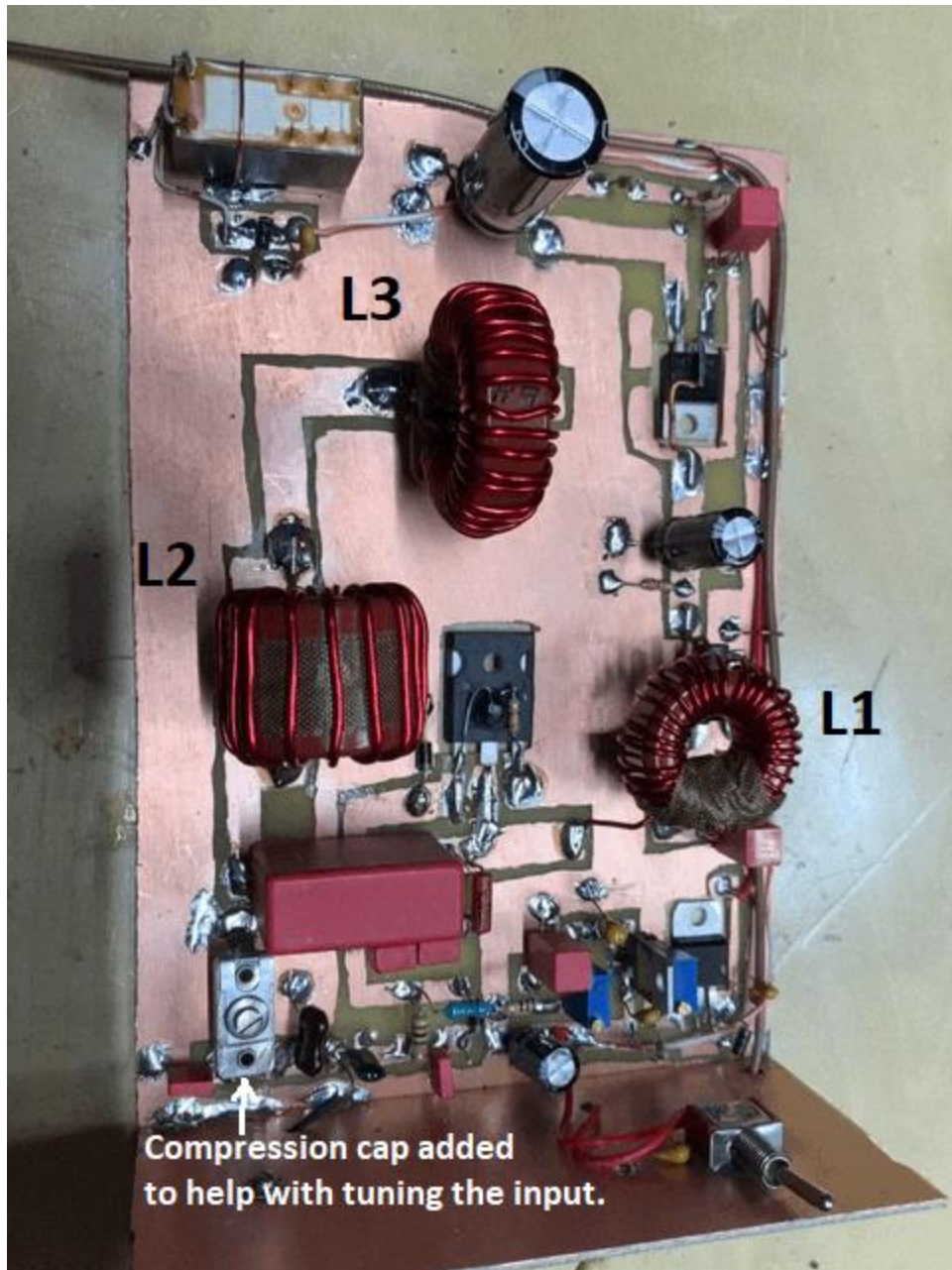
T2 mounted in shielded box



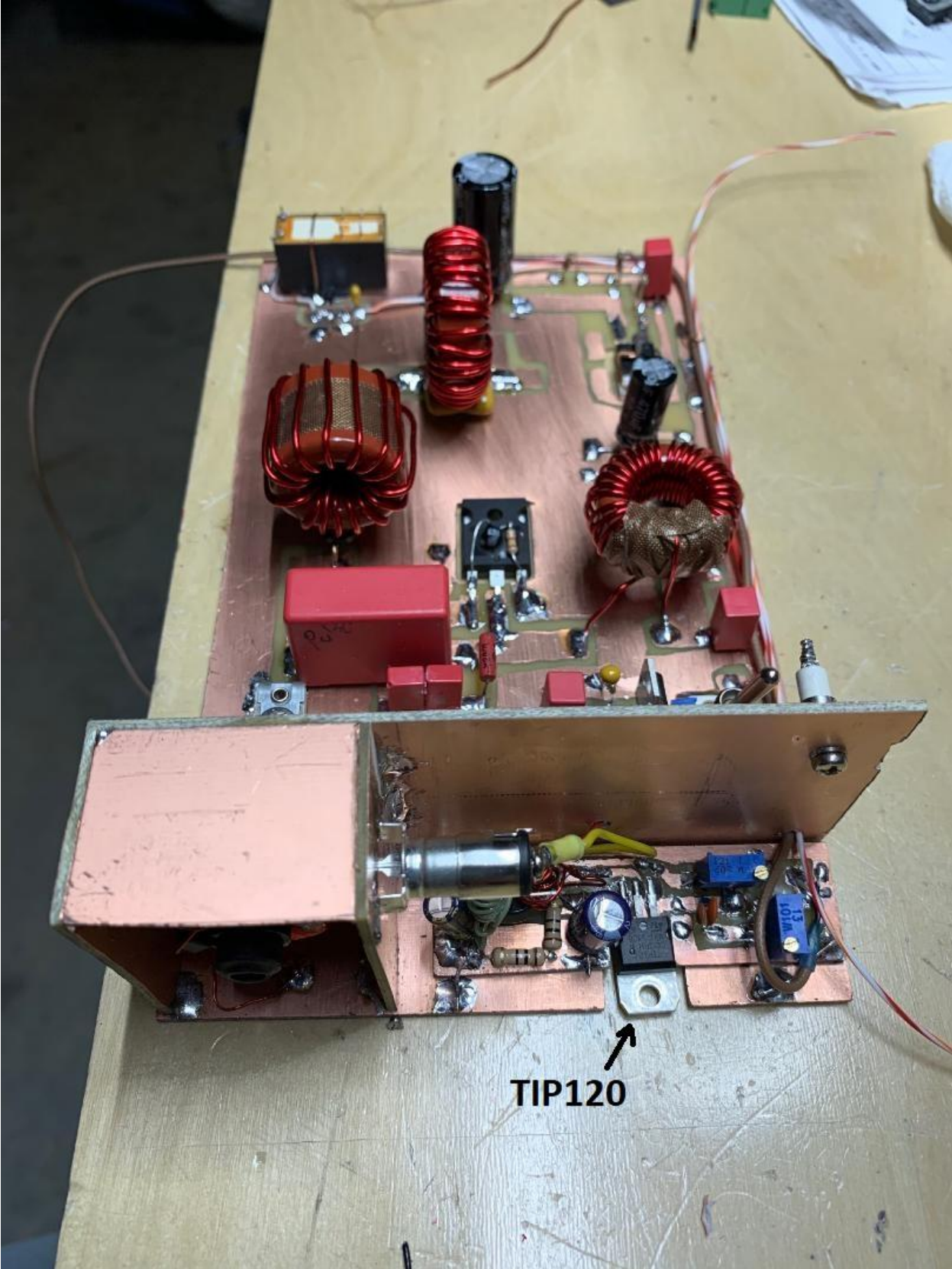
The proper winding technique for T2. If the frequency of the tuned circuit is too low just remove a turn or two from the secondary.



Analyzer connected to J1 input to the amplifier at T2. Picture shows the input circuit tuned to 482kHz. The sweep was done with no power applied to the amplifier. 482 is a little high but it still worked Ok. Adjust C2 until your within the 630M band.

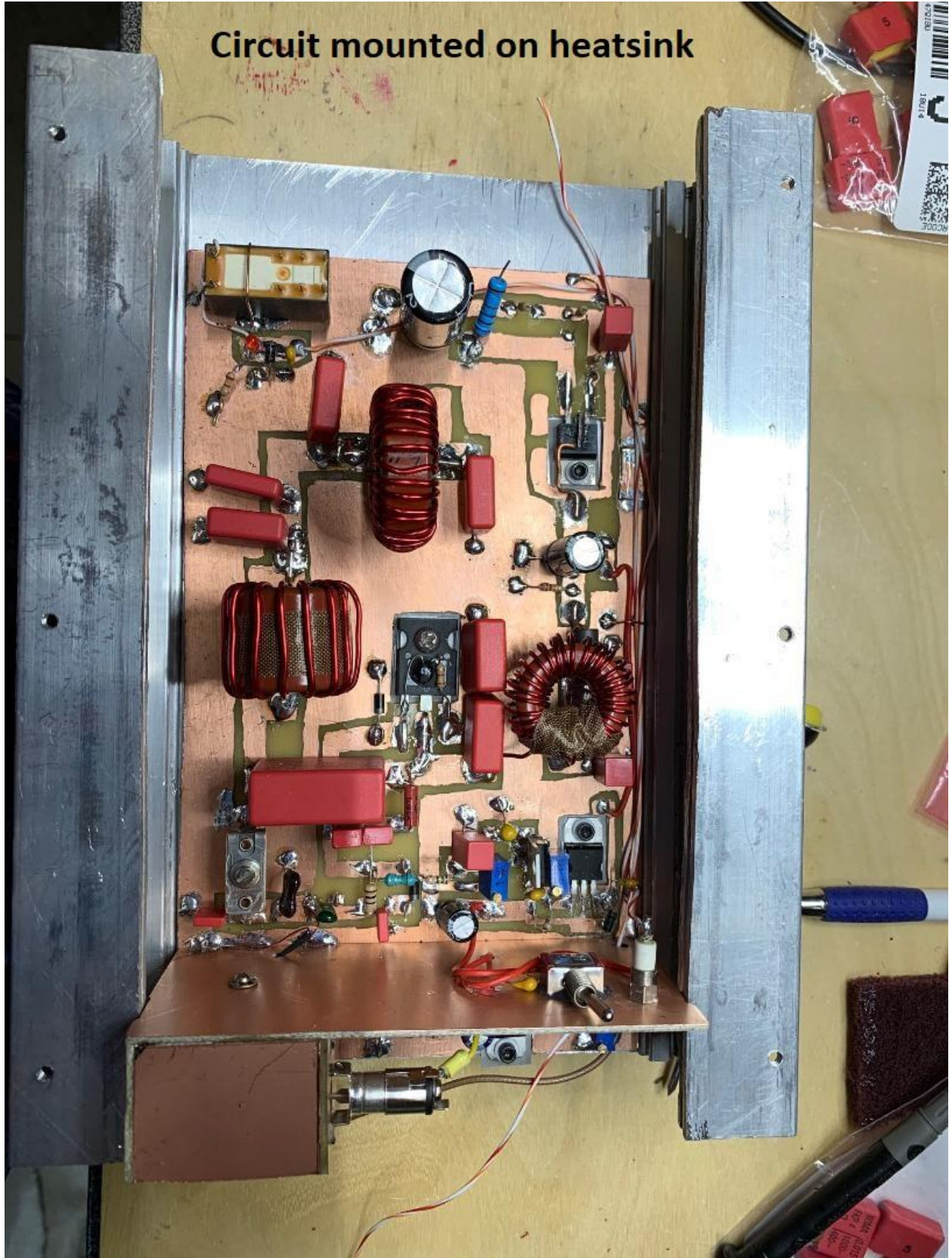


Compression cap added to help with tuning the input.



TIP120

Circuit mounted on heatsink







Parts List 100-200 Watt Linear Amplifier

See Part BOM on main web page.

<http://wb4jwm.com/Parts%20BOM.pdf>

630M 100 - 200 WATT LINEAR AMP

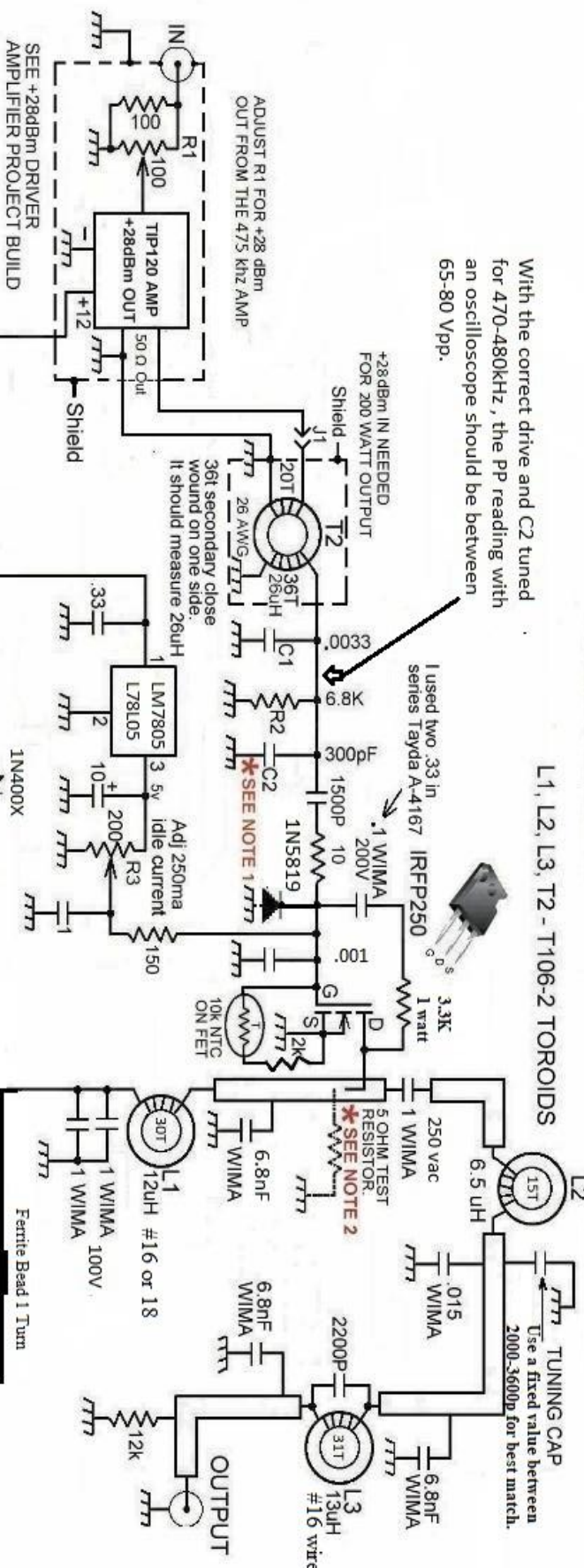
7.4 AMPS @ 200 WATTS

With the correct drive and C2 tuned for 470-480kHz, the PP reading with an oscilloscope should be between 65-80 Vpp.

L1, L2, L3, T2 - T106-2 TOROIDS

L2- DOUBLE STACKED T106-2, 15 TURNS
Should be around 6.5 to 6.9 uH. #16 wire
All output capacitors should be pulse type WIMA, MKP, or FRP 400 VAC

TUNING CAP
Use a fixed value between 2000-3600p for best match.



ADJUST R1 FOR +28 dbm OUT FROM THE 475 KHZ AMP

SEE +28dbm DRIVER AMPLIFIER PROJECT BUILD

DC INPUT VOLTAGE, CURRENT, AND POWER
24VDC, 5.3 AMPS, 100 WATTS OUT
30VDC, 6.3 AMPS, 150 WATTS OUT
36VDC, 7.3 AMPS, 200 WATTS OUT

*** NOTE 1**
C2 SELECTED FOR 475 KHZ BANDPASS. CONNECT ANT ANALYZER TO J1. ADJUST C2 FOR BANDPASS. SHOULD BE BETTER THAN 1.5:1
SEE PICTURE

*** NOTE 2**
WITH NO POWER APPLIED. CONNECT A 5 OHM CARBON RESISTOR TO THE DRAIN CONNECTION AND GROUND. CONNECT ANTENNA ANALYZER TO THE OUTPUT J2. YOU SHOULD SEE SWR BETTER THAN 1.5:1 AROUND 460 KHZ.

Very important R4 is now 10k